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10/039,520	10/24/2001	Mike Lohman	PD-201011	8872

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EXAMINER
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ADHAMI, MOHAMMAD SAJID

ART UNIT	PAPER NUMBER
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2662

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/039,520	<b>Applicant(s)</b> LOHMAN ET AL.	
	<b>Examiner</b> Mohammad S. Adhami	<b>Art Unit</b> 2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 32-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) 1-31 are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-31, drawn to "Message addressed to multiple destinations, classified in class 370, subclass 312.
  - II. Claims 32-35, drawn to "Fault Recovery", classified in class 370, subclass 216.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions Group I and Group II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable.

In the instant case, invention Group I is shown to provide point-to-multipoint communications with a first and second terminal that transmit and receive in a wireless communication system. Terminals could perform this transmission and reception of signals from point-to-multipoint without performing the fault recovery shown by the inventions of Group II.

The invention of Group II is shown to detect a failed transmission and reroute the signal. A wireless communication system could perform this detection and rerouting without utilizing the point-to-multipoint communication shown by the invention of Group

- I. See MPEP § 806.05(d).

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3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Craig Plastrik on August 9, 2005 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-31. Affirmation of this election must be made by applicant in replying to this Office action. Claims 32-35 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: As stated in the specifications in paragraph [25], there is no reference number 100 in Figure 1, as stated in paragraph [27,28,30] number 200 is not in Figure 2, and as stated in paragraph [31,33,34] number 300 is not in Figure 3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office

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action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "115" and "117" have both been used to designate The PMP network on pg. 5 paragraph [26]. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

3. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

4. A suggested correction is to include the function of the two modes, load-sharing and testing, and the repeater functionality.

5. The disclosure is objected to because of the following informalities: In Paragraph [51] the sentence, "In the Internet example, a server (not shown) might transmit requested code belonging an application..." the word "to" should be added before "an", changing the sentence to "In the Internet example, a server (not shown) might transmit requested code belonging to an application..."

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by George (US 5,214,789).

Re claim 1:

George has a first terminal configured to transmit a signal (Col. 1 lines 23-24 “a mobile station radio in a vehicle transmits a request”) and a second terminal to receive the signal and support a plurality of channels (Col. 1 lines 25-27 “access to any one of a plurality of communication channels available at the station...if the requested station hears the request from the mobile radio”).

Re claim 3:

George has a second terminal configured to repeat the received signal (Col. 1 line 23 “repeater stations” where “station” refers to the second terminal as discussed above.)

3. Claims 1, 2, 24-28, 30, and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Kay (US 6,836,515).

Re claims 1 and 2:

[Claims 1 and 2] Kay has a first terminal configured to transmit a signal and a second terminal configured to receive the signal (Col. 9 lines 6-7 “This

enables the hub terminal...to transmit to all of the remote terminals”) and support a plurality of channels (Col. 12 lines 37-40 “A wide variety of channel bandwidths could be selected and divided into a wide variety of subchannels using various symbols rates”), and [Claim 2] outdoor units configured to operate in at least a first mode to support load sharing and a second mode to perform testing (Col. 75 lines 18-19 “One testing technique known is called “load sharing” and Col. 75 lines 29-30 and 32-33 “Another backup testing technique is to switch to the backup hub terminal...once a day...the backup hub terminal...simply transmits a test burst” where a hub terminal contains an outdoor unit Col. 34 lines 14-15 “hub terminals...each having a main outdoor unit (ODU)”).

Re claim 24:

Kay has a transmission means (Col. 12 line 1 “the outdoor unit...(ODU) (or transceiver unit)”) supporting a plurality of channels (Col. 12 lines 37-40 “A wide variety of channel bandwidths could be selected and divided into a wide variety of subchannels using various symbols rates”), and an indoor unit coupled to the transmission means (Col. 12 lines 3-5 “The outdoor unit...of the remote terminal...communicates with the indoor unit”) that receives signals from a hub terminal (Col. 9 lines 6-7 “This enables the hub terminal...to transmit to all of the remote terminals”).

Re claim 25:

Kay has an indoor unit with a transceiver (Col. 23 lines 35-40 “The indoor unit...[contains] a channel and control module...[which] includes: an IF-



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transceiver section") and a switching engine (Col. 11 lines 7-10 "Each indoor unit...(channel processing unit) of the remote terminal...has four SSI ports to allow for several different subscriber interfaces or service specific interface modules and Figure 9 reference 914).

Re claim 26:

Kay has a switching engine with an ATM, IP, Ethernet, and VLAN switch (Col. 57 lines 2-9 "Thus the multi-transport mode SSI module...is provided for subscribers who require both TDM and ATM services...It has eight T1/E1 interfaces...4 LAN controllers...but could be altered in manufacturing cased upon specific needs").

Re claim 27:

Kay has a transmission means with a plurality of antennas that are at least narrow beam or sectorized (Col. 35 lines 2-5 "the outdoor unit...may include a switched beam antenna...such that a switch is coupled to several antennas" and Col. 15 lines 14-15 "The antenna would have a very narrow beamwidth" and Col. 8 line 31 "which may be sectorized antennas").

Re claim 28:

Kay has outdoor units configured to operate in at least a first mode to support load sharing and a second mode to perform testing (Col. 75 lines 18-19 "One testing technique known is called "load sharing" and Col. 75 lines 29-30 and 32-33 "Another backup testing technique is to switch to the backup hub terminal...once a day...the backup hub terminal...simply transmits a test burst"

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where a hub terminal contains an outdoor unit Col. 34 lines 14-15 "hub terminals...each having a main outdoor unit (ODU)").

Re claim 30:

Kay has a modem within at least one of the indoor unit and each of the outdoor units (Fig. 9 and Col. 24 lines 32-33 "while the digital baseband section...contains the multi-modulation modem").

Re claim 31:

Kay has fiber optic cables coupling the outdoor units and the indoor units (Col. 23 lines 45-47 "The outdoor unit...communicates with the indoor unit...via the intrafacility link"). Official notice is taken that the intrafacility link could be a fiber optic link.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4-12, 14, 15, and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kay in view of Britz (2004/0202474).

Re claim 4:

Kay discloses a switching engine (Col. 11 lines 7-10 "Each indoor unit...(channel processing unit) of the remote terminal...has four SSI ports to

allow for several different subscriber interfaces or service specific interface modules and Figure 9 reference 914), a transceiver (Col. 23 lines 35-40 "The indoor unit...[contains] a channel and control module...[which] includes: an IF-transceiver section"), and an outdoor unit with a plurality of antennas, where the antennas are narrow beam or sectorized (Col. 35 lines 2-5 "the outdoor unit...may include a switched beam antenna...such that a switch is coupled to several antennas" and Col. 15 lines 14-15 "The antenna would have a very narrow beamwidth" and Col. 8 line 31 "which may be sectorized antennas").

Kay does not explicitly disclose a plurality of outdoor units coupled to the indoor unit.

Britz discloses a plurality of outdoor units coupled to the indoor unit (Paragraph [0021] "Each node includes at least one outdoor unit... (hereinafter ODU), and typically a plurality of ODUs... Each ODU is coupled to switch circuit... Typically switch circuit... [is] part of an indoor unit").

Kay and Britz are analogous because they both pertain to wireless communications involving indoor and outdoor units.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kay to include a plurality of outdoor units coupled to an indoor unit as taught by Britz in order to support a greater number of users through efficient use of the system equipment.

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Re claim 5:

Kay has a digital modem within at least one of the indoor units and each of the outdoor units (Fig. 9 and Col. 24 lines 32-33 "while the digital baseband section... contains the multi-modulation modem").

Re claim 6:

Kay has fiber optic cables coupling the outdoor units and the indoor units (Col. 23 lines 45-47 "The outdoor unit... communicates with the indoor unit... via the intrafacility link"). Official notice is taken that the intrafacility link could be a fiber optic link.

Re claim 7:

Kay has a switching engine with an ATM, IP, Ethernet, and VLAN switch (Col. 57 lines 2-9 "Thus the multi-transport mode SSI module... is provided for subscribers who require both TDM and ATM services... It has eight T1/E1 interfaces... 4 LAN controllers... but could be altered in manufacturing cased upon specific needs").

Re claim 8:

Kay has a plurality of outdoor units configured to support a plurality of channels (Col. 12 lines 37-40 "A wide variety of channel bandwidths could be selected and divided into a wide variety of subchannels using various symbols rates"), an indoor unit coupled to outdoor units (Col. 23 lines 45-47 "The outdoor unit... communicates with the indoor unit... via the intrafacility link"), and an indoor

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unit receiving signals from a hub over a wireless link (Col. 9 lines 6-7 "This enables the hub terminal...to transmit to all of the remote terminals").

Re claim 9:

Kay has an indoor unit with a transceiver (Col. 23 lines 35-40 "The indoor unit...[contains] a channel and control module...[which] includes: an IF-transceiver section"), and a switching engine (Col. 11 lines 7-10 "Each indoor unit...(channel processing unit) of the remote terminal...has four SSI ports to allow for several different subscriber interfaces or service specific interface modules and Figure 9 reference 914).

Re claim 10:

Kay has a switching engine with an ATM, IP, Ethernet, and VLAN switch (Col. 57 lines 2-9 "Thus the multi-transport mode SSI module...is provided for subscribers who require both TDM and ATM services...It has eight T1/E1 interfaces...4 LAN controllers...but could be altered in manufacturing based upon specific needs").

Re claim 11:

Kay has an outdoor unit with a plurality of antennas that are at least narrow beam or sectorized (Col. 35 lines 2-5 "the outdoor unit...may include a switched beam antenna...such that a switch is coupled to several antennas" and Col. 15 lines 14-15 "The antenna would have a very narrow beamwidth" and Col. 8 line 31 "which may be sectorized antennas").

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Re claim 12:

Kay has outdoor units configured to operate in at least a first mode to support load sharing and a second mode to perform testing (Col. 75 lines 18-19 "One testing technique known is called "load sharing" and Col. 75 lines 29-30 and 32-33 "Another backup testing technique is to switch to the backup hub terminal...once a day...the backup hub terminal...simply transmits a test burst" where a hub terminal contains an outdoor unit Col. 34 lines 14-15 "hub terminals...each having a main outdoor unit (ODU)").

Re claim 14:

Kay has a modem within at least one of the indoor unit and each of the outdoor units (Fig. 9 and Col. 24 lines 32-33 "while the digital baseband section...contains the multi-modulation modem").

Re claim 15:

Kay has fiber optic cables coupling the outdoor units and the indoor units (Col. 23 lines 45-47 "The outdoor unit...communicates with the indoor unit...via the intrafacility link").

Re claim 20:

Kay discloses a hub node transmitting radio signals with a first modulation scheme (Col. 9 lines 4-6 "a single hub terminal...may transmit one burst using one modulation mode"), a plurality of relay nodes configured to receive signals from the hub node (Figure 1 where RT is the "relay node") and forwarding signals according to a second modulation scheme (Col. 9 lines 7-10 "This enables the

hub terminal...to transmit to all of the remote terminals...regardless of what modulation mode is employed by each of the remote terminals.” It is implicit in this statement that because the hub terminal modulation mode can transmit regardless of the modulation mode of the remote terminal, that the remote terminal can have a different (“second”) modulation mode.).

Kay does not explicitly disclose forwarding signals from a “relay node” to radio terminals.

Britz discloses forwarding signals from a “relay node” to radio terminals (Figure 1 aspect 30 is a signal going from a relay node 12 to a radio terminal 24).

Kay and Britz are analogous because they both pertain to wireless communications involving indoor and outdoor units.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kay to include forwarding from relay nodes to radio terminals as taught by Britz in order to extend the range of the wireless communications system.

Re claim 21:

Kay has a relay node that is a plurality of terminals (Figure 1 where RT stands for “remote terminal”).

Re claim 22:

Kay has terminals that provide transmission over a plurality of channels (Col. 12 lines 37-40 “A wide variety of channel bandwidths could be selected and divided into a wide variety of subchannels using various symbols rates”).

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Re claim 23:

Kay has a modulation scheme that is at least QPSK or QAM and dual polarization QPSK (Col. 9 lines 44-47, 49, 50 "the hub terminals...and remote terminals...can modulate and demodulate these signals using multiple modulation modes, such as quadrature phase shift keying (QPSK), 16-quadrature amplitude modulation (16-QAM)...The system is not limited to these modulations").

6. Claims 16-19, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kay in view of George.

Re claim 16:

Kay discloses receiving a signal (Col. 9 lines 6-7 "This enables the hub terminal...to transmit to all of the remote terminals") over a communication channel among a plurality of channels (Col. 12 lines 37-40 "A wide variety of channel bandwidths could be selected and divided into a wide variety of subchannels using various symbols rates").

Kay does not explicitly disclose selectively repeating a signal to another terminal.

George discloses selectively repeating a signal to another terminal (Abstract "A broadcast two-way radio communication system has a plurality of transmit/receive stations which function as repeaters." and Col. 1 line 23 "repeater stations where "station" refers to an indoor unit) in a wireless communication system.



Kay and George are analogous because they both have transmit/receive stations in wireless communication system.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kay to include selectively repeating a signal as taught by George in order to extend the range of the wireless communications system.

Re claim 17:

Kay has outdoor units configured to operate in at least a first mode to support load sharing and a second mode to perform testing (Col. 75 lines 18-19 "One testing technique known is called "load sharing" and Col. 75 lines 29-30 and 32-33 "Another backup testing technique is to switch to the backup hub terminal...once a day...the backup hub terminal...simply transmits a test burst" where a hub terminal contains an outdoor unit Col. 34 lines 14-15 "hub terminals...each having a main outdoor unit (ODU)").

Re claim 18:

Kay has a switching engine with an ATM, IP, Ethernet, and VLAN switch (Col. 57 lines 2-9 "Thus the multi-transport mode SSI module...is provided for subscribers who require both TDM and ATM services...It has eight T1/E1 interfaces...4 LAN controllers...but could be altered in manufacturing cased upon specific needs").

Re claim 19:

Kay has method that demodulates the received signal including at least the modulation schemes of QPSK and QAM (Col. 9 lines 44-47,49,50 "the hub

terminals...and remote terminals...can modulate and demodulate these signals using multiple modulation modes, such as quadrature phase shift keying (QPSK), 16-quadrature amplitude modulation (16-QAM)...The system is not limited to these modulations”).

Re claim 29:

As discussed above in view of claim 24, Kay meets all the limitations of the parent claim. Kay discloses a “transmission means” (Col. 12 line 1 “the outdoor unit...(ODU) (or transceiver unit)”) supporting a plurality of channels (Col. 12 lines 37-40 “A wide variety of channel bandwidths could be selected and divided into a wide of subchannels using various symbols rates”). The ODU is referred to as a transceiver, thus implying it can transmit signals over the stated plurality of channels.

Kay does not explicitly disclose selectively repeating a signal via a “transmission means.”

George discloses an “indoor unit” that repeats a received signal (Abstract “A broadcast two-way radio communication system has a plurality of transmit/receive stations which function as repeaters.” and Col. 1 line 23 “repeater stations where “station” refers to an indoor unit) in a wireless communication system.

Kay and George are analogous because they both have transmit/receive stations in wireless communication system.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kay in view of Britz to include repeating a received signal as taught by George in order to extend the range of the wireless communications system.

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kay as applied to claim 8 above, and further in view of George.

As discussed above, Kay in view of Britz meets all the limitations of the parent claims.

Kay in view of Britz does not explicitly disclose an indoor unit to repeat the received signal.

George discloses an "indoor unit" that repeats a received signal (Abstract "A broadcast two-way radio communication system has a plurality of transmit/receive stations which function as repeaters." and Col. 1 line 23 "repeater stations where "station" refers to an indoor unit) in a wireless communication system.

Kay in view of Britz is analogous to George because they all deal with wireless communications.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kay in view of Britz to include repeating a received signal as taught by George in order to extend the range of the wireless communications system.

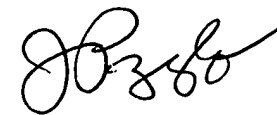
**Conclusion**

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kisse (US 6,567,665) shows a test mode in a wireless communications system. Huang (US 6,611,506) shows load-sharing in a wireless communications system. Johnson (US App. 09/877,242) shows a first terminal transmitting a signal and a second terminal receiving a signal. Reudink (US 6,512,480) shows using narrow beam antennas and using a plurality of antennas.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad S. Adhami whose telephone number is (571)272-8615. The examiner can normally be reached on Monday-Friday 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571)272-3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**JOHN PEZZLO**  
**PRIMARY EXAMINER**